

We claim as follows:

1. A method of forming a multi-ply core component, comprising the steps of:
 - providing a mold press having an upper die and a lower die defining a mold cavity, at least one of the upper die and the lower die having a plurality of protrusions;
 - disposing a first wood composite board and a second wood composite board within the mold cavity; and
 - fusing the first and second boards proximate the plurality of protrusions by compressing the first and second boards in the mold cavity through application of heat and pressure.
2. The method of claim 1, including the step of compressing the first and second boards to achieve high-density portions adjacent the plurality of protrusions.
3. The method of claim 2, including the step of forming channels in the first and second boards, each of the channels having a bottom and side walls extending from and integral with the bottom and an outer planar surface.
4. The method of claim 2, including the step of compressing the first and second boards sufficiently to achieve high-density portions having a specific gravity of at least about 1.30.

5. The method of claim 2, including the step of compressing the first and second boards sufficiently to achieve high density portions having a thickness of at least about 0.25 inch.
6. The method of claim 2, including the step of compressing the first and second boards sufficiently to achieve low density portions adjacent the high-density portions.
7. The method of claim 6, including the step of compressing the first and second boards sufficiently to achieve low density portions having a thickness of at least about 1.00 inch.
8. The method of claim 1, including the steps of:
 - providing the upper die with a first plurality of protrusions;
 - providing the lower die with a second plurality of protrusions; and
 - aligned with the first plurality of protrusions with the second plurality of protrusions.
9. The method of claim 1, including the step of providing as the first and second boards one of insulation board and softboard.

10. The method of claim 9, including the step of providing as the first and second boards insulation boards having an initial thickness of between about 0.70 inch to about 0.80 inch.
11. The method of claim 10, including the step of providing insulation boards that are resin-free.
12. The method of claim 1, including the step of compressing the boards by application of a maximum pressure sustained for a predetermined period during said compressing step.
13. The method of claim 12, including the step of applying the maximum pressure for at least about 150 seconds.
14. The method of claim 13, including the step of applying the maximum pressure for about five minutes.
15. A multi-ply wood composite core component, comprising at least first and second fused plies, said fused plies having first portions at a first density and second portions at a second density greater than the first density, said plies being fused together at said second portions.

16. The core component of claim 15, wherein said second portions have a specific gravity of at least about 1.30.
17. The core component of claim 15, wherein said core component is selected from the group consisting insulation board and softboard.
18. The core component of claim 15, wherein said first portions have a thickness of at least about 1.00 inch.
19. The core component of claim 18, wherein said second portions have a thickness of at least about 0.25 inch.
20. The core component of claim 15, wherein each of said plies includes a major planar surface and a channel recessed from the plane of said major planar surface, said first portions are defined by said major planar surface of said first and second plies, and said second portions are defined by said channels of said first and second plies.
21. The core component of claim 20, wherein said channel comprises a bottom and side walls extending from said bottom to said major planar surface.
22. The core component of claim 21, wherein said side walls extend at an angle of between about 20° to about 80° relative to said bottom.

23. The core component of claim 22, wherein said side walls on said major planar surface of said first ply are aligned with said side walls on said major planar surface of said second ply.
24. The core component of claim 23, wherein said side walls on said major planar surfaces of said first and second plies have a third density intermediate said first and second densities.
25. The core component of claim 24, wherein said bottoms of said channels on said first ply are aligned with and parallel to said bottoms of said channels on said second ply.
26. The core component of claim 15, comprising at least three fused plies.
27. A door, comprising:
- a peripheral frame having opposing sides;
 - first and second door skins, each of said skins having an exterior surface and an interior surface secured to one of the sides of said frame;
 - a wood composite core component disposed between the interior surfaces of said skins, said core component having at least first and second fused plies, said component having first portions at a first density and second portions at a

second density greater than the first density, and said plies are fused together at said second portions.

28. The door of claim 27, wherein said second portions have a specific gravity of at least about 1.30.

29. The door of claim 27, wherein said first portion has a thickness of at least about 1.00 inch.

30. The door of claim 29, wherein said second portion has a thickness of at least about 0.25 inch.

31. The door of claim 27, wherein each of said plies includes a major planar surface and a channel recessed from the plane of said major planar surface, wherein said first portions are defined by said major planar surfaces of said first and second plies, and said second portions are defined by said channels of said first and second plies.

32. The door of claim 31, wherein said door skins have a contoured configuration corresponding to said major planar surfaces and said channels of said core component.

33. The door of claim 32, wherein said door skins have a contoured configuration simulating a plurality of panels.